DOCUMENT RESUME

ED 217 768 HE 015 137

AUTHOR	Hines, Edward; And Others
TITLE	State Support of Higher Education: Appropriations Viewed in Relation to Personal Income.
INSTITUTION	Illinois State Univ., Normal. Coll. of Education.
PUB DATE	Apr 82
NOTE	34p.; A joint publication of the Center for the Study of Educational Finance and the Center for Higher Education, Illinois State University.
AVAILABLE FROM	Department of Educational Administration and Foundations, College of Education, Illinois State University, Normal, IL 61761.
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Comparative Analysis; *Financial Support; *Geographic Regions; Government School Relationship; *Higher Education; *Income; Longitudinal Studies; National Surveys; Resource Allocation; *State Aid; *Tax Allocation; Trend Analysis
IDENTIFIERS	United States

ABSTRACT

State tax appropriations for higher education were examined in relation to aggregate state personal income for two selected years, 1970-1971 and 1980-1981. Percentage changes for the 10-year period were calculated as were percentage differences between appropriations and personal income. States were identified according to regional and national rankings on appropriations and on personal income, and an index was constructed by which to measure state support for higher education. Categories of states are identified as follows: gains in both appropriations and in personal income, losses in both, and a gain in one but a loss in the other as measured against the U.S. average amounts in each category. Information is provided for each state and for the eight census regions. For all regions except the Great Lakes and Mideast states, both appropriations and personal income gains were greater than the U.S. averages. One-half or more of the states in the Southwest, Southeast, and Far West had appropriations and personal income exceeding the U.S. averages. For the case where higher education appropriations were less than the U.S. average but personal income was greater than the average, the following percentages were found: Rocky Mountain region--60 percent; Far West--50 percent; Southeast--33 percent, and New England--17 percent. Regions in which personal income gains were less than the U.S. average but appropriations gains exceeded the U.S. average for the decade were: the Plains--43 percent and Mideast--40 percent. Regions in which both appropriations and personal income gains were less than the U.S. averages were: Great Lakes, New England, Mideast, and the Plains. Appropriations data were obtained from the "Survey of Current Business" and "Grapevine." (SW)

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ED217768

STATE SUPPORT OF HIGHER EDUCATION:
Appropriations Viewed in Relation to Personal Income

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Joint publication of the
Center for the Study of Educational Finance and the
Center for Higher Education
Department of Educational Administration and Foundations
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April 1982

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STATE SUPPORT OF HIGHER EDUCATION: APPROPRIATIONS VIEWED IN RELATION TO PERSONAL INCOME

Edward Hines
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April 1982

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Special thanks is extended by the authors to Professor M. M. Chambers for supplying crucial data on state tax appropriations for higher education

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Abstract

In this brief study, state tax appropriations for higher education were examined in relation to aggregate state personal income for two selected years, 1970-71 and 1980-81. Percentage changes for the ten-year period were calculated as were percentage differences between appropriations and personal income. States were identified according to regional and national rankings on appropriations and on personal income. An index was constructed by which to measure state support for higher education. Patterns, similarities, and differences within and between regions were analyzed.

Background and Purpose

The problem of either maintaining or increasing the support of an area like higher education becomes more critical during periods of resource scarcity. Much of the United States is affected currently by resource scarcity. This scarcity is not the subject under examination in this report, but support of higher education is the focus. There are, of course, many sources of revenue in colleges and universities with variability by institutional type including community and two-year colleges, four-year colleges, and universities—and variability by control such as public or as some would call it "government sponsored," and private or independent including both non-sectarian and sectarian institutions. In some respects, public and private colleges and universities have become more alike. Public resources are used to support institutions through the students in order to attain policy objectives of access and choice. Public monies are used also to provide direct payments to private colleges and universities. Tuition, alumni, and foundation revenue—long considered to be critical in the private sector—have become more important and visible in the public sector. It is not uncommon to find public colleges forming alumni groups, supporting offices of fund-raising and development, and seeking financial support from foundations. This study deals with one major source of revenue to colleges and universities, that of public resources provided to institutions and students through legislative appropriations from tax monies. The emphasis is that utilized by Professor M. M. Chambers in Grapevine.

A basic characteristic of the legislative appropriations process for higher education, or for other public services, is that these appropriations represent only the amount allocated for the operating expenses of higher education. The appropriation is made by public lawmakers at some point in the legislative session. Additional or special resource needs may result in supplemental appropriations, or expenditures may be reduced during the budgetary year as the result of rescission. An additional complication is that fiscal and academic years usually do not coincide. Appropriations and expenditures, further, are not identical.

Appropriations for higher education are not made in a vacuum. The appropriations process is a political process in which projected expenditures are matched with available revenues. At the state level, cash flow is complicated by many issues. One such issue is the state's capacity to raise taxes and thus, to be able to allocate resources to needed areas. One measure of fiscal capacity is personal income. In this study appropriations for higher education were viewed in relation to aggregate personal income. Changes over the decade of the 1970s, in the form of percentage gains in appropriations and in personal income were included. States and regions were examined according to the patterns of gain during this decade.

Research Procedures

State tax appropriations for higher education and aggregate state personal income data for the years 1970-71 and 1980-81 were taken from appropriate monthly and annual issues of GRAPEVINE and from the SURVEY OF CURRENT BUSINESS. For personal income, calendar years 1970 and 1980 were selected. For state tax appropriations, the 1970-71 and 1980-81 fiscal years were selected. The principle utilized in making this selection was

that aggregate state personal income in 1970 and 1980 would provide a measure of the fiscal capacity of the states in those two years. Appropriations for higher education would be reflected in the 1970-71 and 1980-81 fiscal years. Aggregate data rather than per capita data were used for reasons contained in the APPENDIX to this study.

Percentage changes in both appropriations to higher education and in personal income were calculated for these two years. State rankings within region and nationwide were calculated. The percentage difference between appropriations and personal income gains was calculated, and an appropriations-income index was computed. Unity (1.0) indicates identical gains in both appropriations and in personal income. Regional and national rankings were again calculated.

In the analysis, a 2 × 2 contingency table was constructed in order to display four different categories of states: gains in both appropriations and in personal income, losses in both, and a gain in one but a loss in the other as measured against the U.S. average amounts in each category. It is emphasized that other measures could be chosen for a variety of reasons.

Findings

United States Totals. In the decade from 1970 to 1980, total state tax appropriations for higher education increased nearly 200% from nearly seven billion to over twenty billion dollars. This percentage increase was considerably greater than the 169% increase in aggregate personal income for the same period.† While any index larger than 1.0 indicates

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†This report is a descriptive treatment of state tax appropriations for higher education and aggregate state personal income. The reasons for

TABLE 1: STATE APPROPRIATIONS FOR HIGHER EDUCATION AND PERSONAL INCOME: NEW ENGLAND

Census Region and State	State Tax Appropriations for H. Educ. (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank	Aggregate State Personal Income (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank
UNITED STATES	6,960.56	20,873.31	199.88			800,316	2,155,237	169.30		
NEW ENGLAND	298.33	777.19	160.51			51,141	125,099	144.62		
Conn.	97.35	250.36	157.18	3	38	14,930	36,510	144.54	4	43
Maine	27.78	62.63	125.45	5	46	3,292	8,940	171.57	2	31
Mass.	116.09	322.50	177.80	2	33	24,808	58,232	134.73	6	49
N.H.	10.94	32.92	200.91	1	25	2,805	8,429	200.50	1	16
R. Is.	31.41	78.32	149.35	4	39	3,730	8,975	140.62	5	46
Vt.	14.76	30.46	106.37	6	49	1,576	4,013	154.63	3	40

Census Region and State	Appropriations-Personal Income Difference (in %)	Appropriations-Income Index	Regional Ranking	National Ranking
UNITED STATES	30.60	1.18		
NEW ENGLAND	15.89	1.11		
Conn.	12.64	1.09	2	25
Maine	(46.12)	0.73	5	45
Mass.	43.07	1.32	1	14
N.H.	0.41	1.00	4	36
R. Is.	8.73	1.06	3	31
Vt.	(48.26)	0.69	6	48

NOTE: A complete explanation of the tables, percentage differences, regional rankings, nationwide rankings, the appropriations-income index, and a description of terms may be found in the APPENDIX at the end of this report.

greater gain in appropriations for higher education than in personal income, the index for the entire United States was 1.18. In examining other indices, it would be necessary for an index to exceed 1.18 in order to indicate "above average" amounts in appropriations for higher education.

New England Region. In the six states encompassing the New England Region, the appropriations gains were greater than the U.S. average gain only in the state of New Hampshire. When appropriations gains are compared with gains in personal income, four states showed greater gains for higher education. In national rankings on gains in personal income, four of the six New England states were below the U.S. average and, in fact, appeared in the lowest quintile of states which showed only modest gains in personal income. Maine and Vermont demonstrated decreases when higher education appropriations were viewed in relation to gains in personal income. As this measure would represent one view of state support of higher education, one could observe that higher education did not fare especially well in Maine and Vermont during the decade of the 1970s, as compared with the state support of higher education in the other four states in the New England region.

Looking at the national picture, two-thirds of the states in New England are located in the lowest two quintiles in state support of higher education, as measured by the appropriations-income index.

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greater relative gains in appropriations compared with personal income are largely unexplored in this study. It may be, for instance, that the labor-intensive nature of higher education in combination with disproportionate cost increases in such areas as energy, maintenance, and plant improvement fully account for differences between gains in appropriations and personal income. These analyses will be dealt with in future studies.

TABLE 2: STATE APPROPRIATIONS FOR HIGHER EDUCATION AND PERSONAL INCOME: MIDEAST AND GREAT LAKES

Census Region and State	State Tax Appropriations for H. Educ. (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank	Aggregate State Personal Income (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank
MIDEAST	1351.67	3252.14	140.60			185,738	423,972	128.26		
Del.	20.23	63.81	215.42	1	23	2,479	6,172	148.97	2	42
Md.	120.96	367.70	203.99	2	24	17,020	44,210	159.75	1	35
N.J.	154.43	434.22	181.18	3	32	34,118	80,724	136.60	4	48
N.Y.	746.53	1644.36	120.27	5	48	85,730	180,646	110.72	5	50
Pa.	309.52	742.05	139.74	4	43	46,391	112,220	141.90	3	44
GREAT LAKES	1437.15	3412.96	137.48			164,711	408,455	147.98		
Ill.	477.55	964.58	101.99	5	50	50,232	120,434	139.76	5	47
Ind.	173.98	459.64	164.19	3	36	19,433	49,117	152.75	3	41
Mich.	343.69	757.77	120.48	4	47	35,975	92,359	156.68	2	37
Ohio	260.69	719.90	176.15	2	34	42,368	102,410	141.72	4	45
Wis.	181.24	511.07	181.99	1	31	16,703	44,095	163.99	1	34

Census Region and State	Appropriations-Personal Income Difference (in %)	Appropriations-Income Index	Regional Ranking	National Ranking
MIDEAST	12.34	1.10		
Del.	66.45	1.45	1	8
Md.	44.24	1.28	3	16
N.J.	44.58	1.33	2	13
N.Y.	9.55	1.09	4	25
Pa.	(2.16)	0.98	5	37
GREAT LAKES	(10.50)	0.93		
Ill.	(37.77)	0.73	5	45
Ind.	11.44	1.07	3	29
Mich.	(36.20)	0.77	4	43
Ohio	34.43	1.24	1	18
Wis.	18.00	1.11	2	24

Mideast Region. Of the five state in the Mideast Region, all but Pennsylvania showed greater increases in higher education appropriations than in personal income for this ten-year period. Compared with U.S. averages, three of these states were below the U.S. average gain in appropriations (200%) and all five of the states were lower than the U.S. average in personal income gain (169%). In the case of Pennsylvania, personal income increased nearly 142% during the period while appropriations for higher education increased just under 140%. On examination of the appropriations-income percentage difference, therefore, only Pennsylvania demonstrated a negative figure (-2.16%), and its index was the only one less than 1.00 for the region. Three of the five states had indices greater than the U.S. mean of 1.18 (Del., Md., N.J.). Delaware had an index of 1.45, thus attaining a national ranking of 8 among the 50 states in support of higher education during this period.

Great Lakes Region. Compared with the Mideast, the Great Lakes Region experienced a less favorable situation for higher education. Both appropriations and personal income gains (137% and 148%) were considerably lower than the U.S. averages in each category (200% and 169%). For the region as a whole, appropriations increases for higher education were less than for personal income, as they were in two of the five states (Ill., Mich.). For the region, this amounted to 10 percentage points, in Illinois the difference was in excess of 37 points, and in Michigan it was a 36 point difference. The appropriations-income indices were less than 1.00 for the region and less than 1.00 for the two states. Of the five states, only Ohio demonstrated an index greater than the 1.18 nationwide mean. In national rankings, therefore, two states were in the lowest quintile, and two were in the middle of the five quintiles. Ohio had the highest ranking of 18 of the 50 states.

TABLE 3: STATE APPROPRIATIONS FOR HIGHER EDUCATION AND PERSONAL INCOME: PLAINS AND ROCKY MOUNTAIN

Census Region and State	State Tax Appropriations for H. Educ. (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank	Aggregate State Personal Income (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank
PLAINS	551.49	1716.31	211.21			61,087	160,862	163.33		
Iowa	101.60	332.24	227.01	3	19	10,725	27,328	154.81	7	39
Kan.	82.03	259.86	216.79	5	22	8,490	23,648	178.54	2	29
Minn.	143.45	477.95	233.18	2	18	14,851	39,744	167.62	3	32
Mo.	131.57	353.25	168.49	6	35	17,360	44,273	155.03	6	38
Neb.	48.39	166.16	243.38	1	14	5,578	14,738	164.22	4	33
N.D.	23.25	75.66	225.42	4	21	1,990	5,723	187.59	1	23
S.D.	21.20	51.19	141.46	7	42	2,093	5,408	158.39	5	35
ROCKY MOUNTAIN	231.28	655.99	183.63			18,074	59,742	230.54		
Col.	110.62	263.98	138.64	4	44	8,644	29,029	235.83	2	7
Idaho	31.51	94.15	198.79	3	26	2,378	7,626	220.69	4	12
Mont.	29.16	66.50	128.05	5	45	2,390	6,732	181.67	5	26
Utah	45.32	160.86	254.94	2	12	3,432	11,203	226.43	3	8
Wyo.	14.67	70.50	380.57	1	4	1,230	5,152	318.86	1	1

Census Region and State	Appropriations-Personal Income Difference (in %)	Appropriations-Income Index	Regional Ranking	National Ranking
PLAINS	47.88	1.29		
Iowa	72.20	1.47	2	7
Kan.	38.25	1.21	4	19
Minn.	65.56	1.39	3	10
Mo.	13.46	1.09	6	25
Neb.	79.16	1.48	1	5
N.D.	37.83	1.20	5	20
S.D.	(16.93)	0.89	7	40
ROCKY MOUNTAIN	(46.91)	0.80		
Col.	(97.19)	0.59	5	50
Idaho	(21.90)	0.90	3	38
Mont.	(53.62)	0.70	4	47
Utah	28.51	1.13	2	23
Wyo.	61.71	1.19	1	21

Plains Region. Among the seven states in the Plains Region, only Missouri and South Dakota had ten-year percentage increases for higher education appropriations of less than 200%, the U.S. average. In this Region, average appropriations gains (211%) exceeded the U.S. average (200%), but personal income gain (163%) was below the U.S. average (169%). Only South Dakota showed a negative appropriations-income difference (-16.93) with an appropriations increase of nearly 142% and an increase in personal income of 158%. All but South Dakota had appropriations-income indices greater than 1.00. Five of the seven states had indices greater than the nationwide mean of 1.18 on the appropriations-income index. As to ranking, three states were in the highest quintile (Iowa, Minnesota, Nebraska). Two states were in the second highest quintile (Kansas, North Dakota). Missouri ranked 25th and South Dakota ranked 40th of the 50 states.

Rocky Mountain Region. Compared with the Plains Region, the five states of the Rocky Mountain Region showed nearly the opposite configuration. Average appropriations gains (184%) were less than the U.S. average (200%), but personal income gain (231%) exceeded the U.S. average. These five states demonstrated greater gains in aggregate personal income than did the Plains states, but three of the states had lower gains in appropriations than in income (Colorado, Idaho, Montana). In Utah and in Wyoming, appropriations increases were greater than increases in personal income, and in Wyoming both increases were greater than 300%. But, only in Wyoming was the index greater than the national mean of 1.18 and in that state it was only by .01. As a result, the national rankings of the Rocky Mountain states were unimpressive with two states in the lowest quintile including Colorado ranked 50th, Idaho ranked in the second lowest quintile, and two states ranked in the middle quintile.

TABLE 4: STATE APPROPRIATIONS FOR HIGHER EDUCATION AND PERSONAL INCOME: SOUTHEAST

Census Region and State	State Tax Appropriations for H. Educ. (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank	Aggregate State Personal Income (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank
SOUTHEAST	1360.65	4742.48	248.55			142,271	428,822	201.41		
Ala.	74.83	427.50	471.29	1	1	10,014	29,199	191.58	6	19
Ark.	54.92	187.57	241.53	7	16	5,353	16,651	211.06	3	14
Fla.	241.36	705.41	192.26	9	27	25,867	88,675	242.81	1	5
Ga.	148.65	431.96	190.59	10	28	15,303	44,217	188.94	9	22
Ky.	108.72	307.57	182.90	12	30	10,003	27,939	179.31	12	28
La.	121.81	398.33	227.01	8	19	11,100	35,645	221.13	2	11
Miss.	72.19	261.28	261.93	5	11	5,677	16,626	192.87	5	18
N.C.	175.93	660.65	275.52	3	9	16,419	46,043	180.43	11	27
S.C.	68.79	344.49	400.78	2	2	7,730	22,726	194.00	4	17
Tenn.	98.60	338.17	242.97	6	15	12,194	35,525	191.33	7	20
Va.	136.13	509.73	274.44	4	10	17,295	50,333	191.03	8	21
W. Va.	58.72	169.82	189.20	11	29	5,316	15,243	186.74	10	25

Census Region and State	Appropriations-Personal Income Difference (in %)	Appropriations-Income Index	Regional Ranking	National Ranking
SOUTHEAST	47.14	1.23		
Ala.	279.71	2.46	1	1
Ark.	30.47	1.14	7	22
Fla.	(50.55)	0.79	12	42
Ga.	1.65	1.01	10	34
Ky.	3.59	1.02	9	33
La.	5.88	1.03	8	32
Miss.	69.06	1.36	5	11
N.C.	95.09	1.53	3	3
S.C.	206.78	2.07	2	2
Tenn.	51.64	1.27	6	17
Va.	83.41	1.44	4	9
W. Va.	2.46	1.01	10	34

Southeast Region. The twelve states of the Southeast Region present a generally more positive picture regarding relative support for higher education as measured by comparisons between appropriations and personal income. Both appropriations and personal income percentage gains were greater than the U.S. averages in each category; in fact, gains in this Region were in excess of 200% each with higher education appropriations 47 percentage points greater than income gain. Four of the twelve states, in fact, ended up in the highest quintile (Alabama, South Carolina, North Carolina, Virginia) with Alabama registering a remarkable 471% gain in percentage increases for higher education during the decade. South Carolina demonstrated a 400% gain during the period. In national rankings in appropriations gains, eight of these twelve states were ranked in the two highest quintiles. In personal income gains, the Southeast did not fare quite as well, yet half of these twelve states again were in the highest two quintiles.

Of the twelve states, only Florida experienced a negative appropriations-income difference. While Florida's gain in higher education appropriations was greater than 190%, its gain in personal income for the decade was nearly 243%. The appropriations-income index for Florida was less than 1.00, and its ranking on this measure was in the lowest quintile. In national rankings on the appropriations-income index, Florida was in the lowest quintile, four states were in the next lowest quintile, Arkansas was in the middle quintile, and the remaining six states were in the highest two quintiles.

TABLE 5: STATE APPROPRIATIONS FOR HIGHER EDUCATION AND PERSONAL INCOME: SOUTHWEST AND FAR WEST

Census Region and State	State Tax Appropriations for H. Educ. (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank	Aggregate State Personal Income (in millions) 1970-71	1980-81	Ten-Yr. Change (in %)	Region Rank	Nat. Rank
SOUTHWEST	537.98	2159.83	301.47			58,060	197,961	240.96		
Ariz.	83.35	280.45	236.47	4	17	6,620	23,951	261.80	1	3
N. Mex.	41.64	143.32	244.19	3	13	3,143	10,219	225.14	3	9
Okla.	69.47	271.18	290.36	2	7	8,565	27,645	222.77	4	10
Tex.	343.52	1464.88	326.43	1	5	39,732	136,146	242.66	2	6
FAR WEST	1192.01	4156.41	248.69			119,234	350,323	193.81		
Cal.	817.13	3158.89	286.58	3	8	90,295	259,551	187.45	5	24
Nev.	15.91	62.11	290.38	2	6	2,313	8,597	271.68	1	2
Ore.	95.90	250.44	161.15	4	37	7,795	24,587	215.42	3	13
Wash.	190.90	467.72	145.01	5	41	13,827	42,677	208.65	4	15
Alas.	17.00	81.88	381.65	1	3	1,438	5,136	257.16	2	4
Haw.	55.17	135.37	145.37	5	40	3,566	9,775	174.12	6	30

Census Region and State	Appropriations-Personal Income Difference (in %)	Appropriations-Income Index	Regional Ranking	National Ranking
SOUTHWEST	60.51	1.25		
Ariz.	(25.33)	0.90	4	38
N. Mex.	19.05	1.08	3	28
Okla.	67.59	1.30	2	15
Tex.	83.77	1.35	1	12
FAR WEST	54.88	1.28		
Cal.	99.13	1.53	1	3
Nev.	18.70	1.07	3	29
Ore.	(54.27)	0.75	5	44
Wash.	(63.64)	0.69	6	48
Alas.	124.49	1.48	2	5
Haw.	(28.75)	0.83	4	41

Southwest and Far West Regions. The ten states included in these two regions exhibit a diverse pattern. However, both appropriations and personal income gains are considerably in excess of the U.S. averages in appropriations gains (200%) and in personal income gains (169%). In the Southwest, the appropriations gain of 201% was more than 100 percentage points greater than the U.S. average. There is considerable variability in the limited number of variables included in this study, and also these two regions vary widely in other characteristics such as population and location with two of the states lying outside the Continental U.S. In appropriations increases for higher education, two states were in excess of 300% gain in percentage points (Texas, Alaska), five states gained more than 200%, and three states gained less than 200%. In personal income gain, there were two states experiencing less than a 200% gain (California, Hawaii), and the eight other states showed gains of between 200% and 300%.

Although the percentage gains in both higher education appropriations and personal income appeared fairly impressive, four of the ten states experienced negative appropriations-income differences (Arizona, Oregon, Washington, Hawaii). These same four states, therefore, showed appropriations-income indices of less than 1.00. Four other states had appropriations-income indices in excess of 1.18, including California with an index of 1.53 and Alaska with an index of 1.48.

In national rankings, there was a diverse pattern. Two states were in the top quintile (California, Alaska), two were in the second highest quintile (Oklahoma, Texas), two were in the middle quintile (New Mexico, Nevada), Arizona was in the fourth quintile, and three states appeared in the lowest quintile (Oregon, Washington, Hawaii).

Analysis

In this analysis of all 50 states, only the variables of state tax appropriations for higher education and aggregate state personal income were used. Still, the states exhibit a fairly diverse pattern with varying mixtures within each major geographic region. Any explanation of these patterns must take several factors into account. First, this view encompasses an entire decade, but the parameters are two cross-sections in 1970 and in 1980. In either year, states having just completed several years of expansion in higher education will tend to appear quite different from other states just beginning higher education expansion. The "freeze-frame" benefits of still photography sometimes do not outweigh the disadvantages of missing the moving picture.

A second limitation of this study is that only tax appropriations and personal income were utilized. Not all higher education revenue sources were included, and only aggregate personal income was used. Either variable could be enhanced by the use of other measures such as tuition revenue and funds from auxiliary enterprises, by the use of measures more directly related to tax effort such as state and local collections per capita, or by the use of other indicators of wealth and affluence.

Another limitation is related to higher education itself. There are a number of variables affecting the size and scope of higher educational systems in the states. These include the size of the public sector versus the private or independent sector, the college-going rate, whether the enrollment is headcount versus full-time equivalent, the number of lower-cost colleges versus higher-cost colleges and research institutions, and the number and seniority of the college staff and faculty.

In spite of these and other limitations, we can make some observations in this analysis. These observations are reflected in Table 6.

Table 6 displays the patterns of states according to higher education appropriations and aggregate state personal income falling above or below the U.S. averages in each category. While Table 6 utilizes the U.S. averages in each category, it would be possible to reconfigure the table by adjusting either the appropriations or the personal income levels. If, for instance, we learn that energy and maintenance costs required a disproportionate amount of the increases in appropriations, then adjustments can be made for these and other factors.

Cell One includes states where both appropriations and personal income gains were greater than the U.S. averages. All regions except the Great Lakes and Mideast states were represented in Cell One. In examining the percentage of states within each region which were included in Cell One:

Southwest - 100%

Southeast - 67%

Far West - 50%

Rocky Mt. - 40%

Plains - 29%

New England - 17%

One-half or more of the states in the Southwest, Southeast, and Far West were located in Cell One where appropriations and personal income exceeded the U.S. averages.

In Cell Two, higher education appropriations were less than the U.S. average but personal income was greater than the U.S. average. This might be a cell in which support and effort for higher education did not equal the fiscal capacity which might have been used for an area like higher

education. According to region and percentage, there was the following:

Rocky Mt. - 60%

Far West - 50%

Southeast - 33%

New England - 17%

Eleven states were located in this "excess capacity" cell, including one-half or more of the states in the Rocky Mountain and Far West Regions.

In Cell Three, personal income gains were less than the U.S. average, but appropriations gains exceeded the U.S. average for the decade. In a sense, this Cell is illustrative of strong support for higher education apparently in the face of declining available revenues, at least as measured by aggregate personal income. The regions and percentages included in this Cell were as follows:

Plains - 43%

Mideast - 40%

Five states were included in this grouping, and they represented only two regions.

Finally, in Cell Four, there were examples of states where both appropriations and personal income gains were less than the U.S. averages. The regions and percentages included:

Great Lakes - 100%

New England - 67%

Mideast - 60%

Plains - 29%

All of the five Great Lakes states were in this category, as were two-thirds of the six New England states and three-fifths of the five Mideast states. This provides examples of states where relative gains in personal income

TABLE 6: STATE PATTERNS ON MEASURES OF HIGHER EDUCATIONAL APPROPRIATIONS AND PERSONAL INCOME

STATE TAX APPROPRIATIONS FOR HIGHER EDUCATION	AGGREGATE STATE PERSONAL INCOME: 10-year % gain greater than 169%	AGGREGATE STATE PERSONAL INCOME: 10-year % gain less than 169%
10-year % gain greater than 200%	*CELL 1* N.H. - New England Kan., N.D. - Plains Utah, Wyc. - Rocky Mt. Ala., Ark., La., Miss., N.C., S.C., Tenn., Va. - Southeast Ariz., N. Mex., Okla., Tex. - Southwest Cal., Nev., Alas. - Far West	*CELL 3* Del., Md. - Mideast Iowa, Minn., Neb. - Plains
10-year % gain less than 200%	*CELL 2* Maine - New England Col., Idaho, Mont. - Rocky Mt. Fla., Ga., Ky., W. Va. - Southeast Ore., Wash., Hawaii - Far West	*CELL 4* Conn., Mass., R. Is., Vt. - New Eng. N.J., N.Y., Pa. - Mideast Ill., Ind., Mich., Ohio, Wis. - Gr. Lakes Mo., S.D. - Plains

were less than the U.S. average and where support of higher education also was less than the U.S. average.

The pattern emerging from this analysis is generally supportive of the Sunbelt versus the industrialized Northeast/upper Midwest, yet with clear exceptions. Four states in the Southeast (Fla., Ga., Ky., W. Va.) and three states in the Far West (Ore., Wash., Hawaii) experienced appropriations gains for higher education in this decade which were less than the U.S. average. Furthermore, in the instances of Florida, Oregon, Washington and Hawaii, the appropriations-income indices were all negative, revealing an imbalance between appropriations and income gains. In short, these states had resources but chose not to utilize them for higher education as represented by these two cross-sectional views. Similarly, Maine, Colorado, Idaho, and Montana experienced gains in personal income which were greater than the U.S. average gain; however, these states did not devote relatively as much of the gain to higher education as did many other states.

In an opposite configuration, Delaware, Maryland, Iowa, Minnesota, and Nebraska experienced relatively lower gains in personal income than the U.S. average. Yet, each of these five states exceeded the U.S. average appropriations gain for the support of higher education.

One might observe that there are problems in both revenue gains and in support of higher education in all of the Great Lakes states, in a substantial number of the states in New England and in the Mideast, and in two of the Plains states.

This brief study cannot begin to do complete justice to the entire individual situations in those states. This report, however, does document to some extent the nature and location of some fiscal problems in the states.

Further Research

Additional research is underway which will enable extension of these findings and analysis to involve other variables and purposes. One effort will enable examination of the support of higher education in constant dollars and calculation of the state support for higher education excluding the impact of energy, maintenance, and physical plant costs. This will permit identification of the extent to which energy-related matters have consumed a disproportionate amount of the gain in dollar support of higher education in the 1970s.

A second effort will utilize the data in the recent study by Halstead.[†] Multiple regression will be used in calculating the particular impact of selected variables upon the overall state support of higher education.

A third study will attempt to examine state support of several social and public services. This will enable a comparative analysis of the support of multiple services as the demand for available resources becomes increasingly intense and competitive.

Also being explored are ways in which the tax structure of the state affects fiscal effort for higher education, e.g., absence of a major tax instrument (income or sales) in certain states. States with low fiscal effort over a whole decade deserve special attention.

[†]D. Kent Halstead, "How States Compare in Financial Support of Higher Education, 1981-1982," Washington, D.C.: National Institute of Education, February 11, 1982.

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APPENDIX

Appropriations for higher education operating expenses for 1970-71 and 1980-81 for each state are displayed in Tables 1 through 6. Also displayed are percentage increases and state rankings regionally and nationally. Figures for appropriations in 1970-71 for each state except Pennsylvania are from M. M. Chambers, Appropriations of State Tax Funds for Operating Expenses of Higher Education 1970-71, Washington, D.C.: National Association of State Universities and Land-Grant Colleges, September 1, 1970, p. 5. For 1970-71, Pennsylvania data were obtained from the 1971-72 edition of Appropriations of State Tax Funds for Operating Expenses of Higher Education, December 1971, p. 27. For 1980-81, data for each state except Michigan were obtained from the 1980-81 edition of Appropriations of State Tax Funds for Operating Expenses of Higher Education, October 1980, p. 5. Michigan data for 1980-81 were obtained from Grapevine, 23:271 (January 1981), p. 1712.

Personal income data were obtained from U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, 61:7 (July 1981), p. 30. The District of Columbia data, reported in the Survey, are omitted from this analysis.

The appropriations-income difference was computed as a simple percentage difference, appropriations increase less personal income increase (in %). The index was calculated as a ratio of the percentage increase in appropriations to the percentage increase in total income. A ratio, or index, greater than 1.00 indicates the extent to which appropriations increases exceeded total income increases.

Both appropriations and income are in terms of current dollars. Neither has been adjusted for cost-of-living. Regional and national rankings for

each state were assigned on the bases of appropriation percentage increases, income percentage increases, and the appropriations-income index, with greater increases or indices being assigned higher ranks (lower numerical). Regional rank is the rank of a state among the states in its region only; national rank is the rank among all fifty states. When ties occurred, all states having the same percentage of increase or the same index were assigned the same numerical rank, and subsequent ranking omitted ranks skipped because of such ties. The only tie among regional rankings was between Georgia and West Virginia in the Southeast region. These states tied on the appropriations-income index for the tenth ranking within the region. Therefore, the eleventh ranking on the index for this region was omitted. Ties on national ranking occurred on percentage increase in appropriations and on the appropriations-income index. Iowa and Louisiana tied on the percentage increase in appropriations for the nineteenth national rank. Therefore, the twentieth national rank for percentage increase in appropriations was omitted. Several ties occurred on national ranking on the appropriations-income index: third, California and North Carolina; fifth, Alaska and Nebraska; twenty-fifth, Connecticut, New York and Missouri; twenty-ninth, Indiana and Nevada; thirty-fourth, Georgia and West Virginia; thirty-eighth, Arizona and Idaho; forty-fifth, Maine and Illinois; and forty-eighth, Vermont and Washington. Because of these ties, the following national ranks have been omitted: 4, 6, 26, 27, 30, 35, 39, 46, and 49.

In selecting a measure of fiscal capacity, considerable attention was given to a per capita personal income measure as well as aggregate state personal income. Aggregate state personal income was chosen, and the following definition of this measure from the Survey of Current Business is useful:

> Total personal income is the current income received by residents of an area from all sources. It is measured before deduction of income and other personal taxes, but after deduction of personal contributions for social security, government retirement, and other social insurance programs. It consists of wage and salary disbursements (covering all employee earnings, including executive salaries, bonuses, commissions, payments in kind, incentive payments, and tips), various types of supplementary earnings termed "other labor income," proprietors' income, rental income of persons, dividends, personal interest income, and government and business transfer payments. (61:4, April 1981, p. 41)

Per capita personal income would be calculated typically by using estimates of population from the Bureau of the Census. Unusually high or low population data often reflect temporary conditions, such as temporary workers in the labor force, temporary institutional populations including students, and sudden changes as caused by crop production or natural disasters. In this study, it was decided that an aggregate income measure was more stable and less affected by temporary conditions.

Aggregate income figures which were contained in the Survey of Current Business and used as the basis for this analysis exclude income received by Federal Government employees overseas. Some regional aggregate income data reported in this analysis differed from those reported in the Survey of Current Business. These differences were due principally to the exclusion of the District of Columbia from this analysis and, to a lesser extent, by differences in rounding procedures between the Survey of Current Business and this analysis.

In the regional rankings and in the display of data, eight regions were selected rather than the nine Census Regions. In this study, the following were used: New England, Mideast, Great Lakes, Plains, Rocky Mountain, Southeast, Southwest and Far West. The Census Regions are: New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific.